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Factors Influencing Cervical Cancer Screening Participation in Female: Systematic Review

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ABSTRACT

Background: Cervical cancer is the second leading cause of morbidity and mortality in the world. This can be influenced by several things such as lack of willingness to participate in cervical cancer screening. This study aimed to explore factors that influence participation in cervical cancer screening.
Subjects and Method: This study is a systematic review with PICO covering: (1) Population: women; (2) Intervention: factors influencing participation; (3) none; (4) level of participation in cervical cancer screening. The databases used are PubMed and JSTOR. Inclusion criteria include full text in Indonesian and English with research subjects in women with cervical cancer. Exclusion criteria in this study were articles published less than five years ago.
Results: A total of 21 articles stated that several factors such as interpersonal, intrapersonal, community, organizational, and public policy can influence participation in cervical cancer screening.
Conclusion: Intervention strategies based on the reviewed factors need to be improved to reduce cervical cancer morbidity and mortality rates.

Keywords: Cervical cancer, participation, screening, women

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BACKGROUND

Cancer in women is cervical cancer that affects the cervix. Cervical cancer is most common in women aged 30-39 years. The cause of cervical cancer is by Human Papillomavirus (HPV) subtypes 16 and 18 (Novalia, 2023). Symptoms of cervical cancer such as post-coital bleeding, smelly vaginal discharge, pelvic pain, or asymptomatic. Some risk factors for cervical cancer include HPV E6 and E7 infection, smoking, more than one sexual partner, use of contraception, and having a history of sexually transmitted diseases (Ibeanu, 2011).

There are 18.1 million new cancer cases and 9.6 million cancer deaths occurring worldwide based on GLOBOCAN 2020. Cervical cancer is the second leading cause of morbidity and mortality in the world and Indonesia (Sung, 2021). In Indonesia, new cases of cervical cancer reached 36,633 people. The cases have increased compared to the previous few years. This is the result

of the report of The Global Cancer Observatory in 2020.

Prevention can be done through primary prevention such as HPV vaccination. Secondary prevention by screening using Visual Inspection Acetate (IVA) or Papanicolau smear test (Pap smear). The IVA method is a screening that is easy to do, inexpensive and can be implemented in all health facilities. By conducting screening using this test, it is expected to identify early abnormalities in the cervix and prevent the development of cervical cancer. Conducting early detection regularly can reduce the death rate from cervical cancer by up to 70% (Novalia, 2023).

Based on previous research, it was found that the level of women's participation in cervical cancer screening is still low. There are several factors that influence it. In the ecological models theory of Mc Leroy et al., it is explained that there are 5 levels of factors that can influence a person's healthy behavior. These levels are interpersonal, intrapersonal, community, organizational, and related policy factors (Chan and So, 2017). The aim of this systematic literature review is to explore factors influencing women's participation in cervical cancer screening.

CASE PRESENTATION

1. Study Design

The research design used is a systematic review, a method that summarizes the primary research results to present more comprehensive and balanced facts. The selected articles are research articles that have a similar correlation with the research topic.

2. Steps of Systematic Review

A systematic review is conducted through the following 4 steps:

1) Formulate research questions using the PICO model
2) Search for primary review articles from electronic databases such as PubMed and JSTOR.
3) Screen and critically appraise primary studies.
4) Interpret the results and conclude.

3. Inclusion Criteria

The inclusion criteria in this systematic literature review study were factors that influence participation in cervical cancer screening in women who use Indonesian and English.

4. Exclusion Criteria

The exclusion criteria in this systematic literature review study were publication periods under the last five years that did not discuss factors influencing participation in cervical cancer screening in women or that were not in accordance with the research topic.

5. Operational Definition of Variables

Women's participation in cervical cancer screening can be influenced by a variety of factors including social, economic, cultural, psychological, and accessibility of health services. These factors are important to understand because cervical cancer screening, such as the Pap smear or HPV test, is a vital tool for detecting precancerous and cancerous changes in the cervix at an early stage, greatly increasing the chances of successful treatment. Here are some of the key factors that influence participation in cervical cancer screening:

a. Awareness and Knowledge

Lack of awareness about the importance of cervical cancer screening is often a major barrier. Many women do not understand how screening is done, its benefits, and what risks are addressed through early detection. Effective health education and easily accessible information can increase awareness and participation in screening programs.

b. Access to Health Services

The availability and access to health facilities that provide screening services is an

important factor. In some areas, especially in rural or low-income areas, this access can be limited. Good health infrastructure and affordable health services can increase participation in screening.

c. Cultural and Social Norms

In some cultures, there is a stigma associated with diseases related to female reproductive organs that can discourage women from seeking screening. Modesty norms and taboos around sexuality can also prevent women from seeking screening.

d. Economic Factors

The cost of screening and time lost from work to travel to clinics can be barriers for women, especially in countries with limited health resources and a lack of adequate health insurance.

e. Family and Community Support

Support from family and community can influence participation in screening. In some cases, women may need permission from their partner or family to go for screening.

f. Psychology

Fear of screening results, embarrassment, or fear of the procedure itself can also reduce willingness to undergo screening. Education about minimally invasive procedures and open dialogue about these concerns can help reduce anxiety.

g. Recommendations from Health Care Professionals

Recommendations and encouragement from doctors or other healthcare professionals have a major influence on the decision to undergo screening. Trust in health care providers and good communication are essential.

Increasing participation in cervical cancer screening requires a holistic approach that involves interventions at multiple levels, including improving public health policy, broad education programs, increasing access to health care, and addressing socio-cultural barriers.

5. Study Instrument

Study instruments are defined as tools to help researchers collect research data. This study instrument uses documentation. Documentation is a data collection method that produces important notes related to the problem being studied and then obtains complete and valid data. Documentation in this study is by searching for publication journals that contain outlines or categories according to the variables being studied. The literature documented and identified is through Pubmed 160 articles and JSTOR 53 articles with a total of 213 articles, then articles screened through title, year and completeness totaling 209 articles, and complete articles tested for feasibility totaling 81 articles, and articles that meet the requirements totaling 21 articles.

6. Data Analysis

Data were analyzed by grouping data according to variables and presenting the data studied to answer the research objectives. This study uses a qualitative method by organizing data, finding what is important and what can be interpreted. The data analyzed are sourced from the results of library research from journals taken from PubMed, and JSTOR, then the researcher analyzes the journals obtained to draw conclusions.

RESULTS

The literature search and selection process in this review is described in the form of a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram (Figure 1).

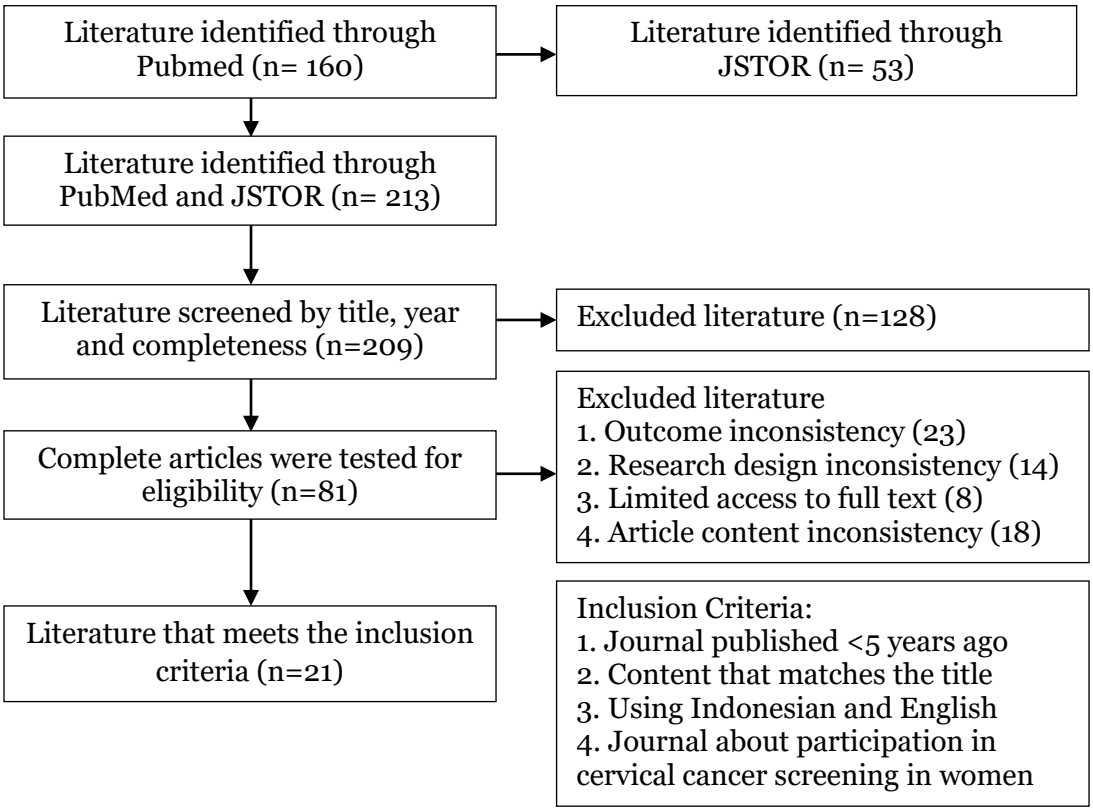

Figure 1. PRISMA flow diagram

Table 1 explains that the results of the analysis show that from twenty-one journals it was found that there are various factors that can influence participation in cervical cancer screening in women.

Table 1. Summary of primary studies on factors that may influence participation in cervical cancer screening in women

Author	Country	Study Design	Sample	Findings
Weng et al., 2020	Tanzania	Cross-sectional	Women of reproductive age	Level of awareness, education, marital status and age
Ampofo et al., 2020	Ghana	Cross-sectional	Women of reproductive age	Marital status, education, feelings of shame, fear, and misdiagnosis, feelings of pain/not during the procedure, cost factors, busy work schedule, knowledge of available health facilities, operators who carry out screening, communication with health workers, and availability of national government programs.
Wakwoya et al., 2023	Ethiopia	Cross-sectional	Women 25-49 years	Age, education level, number of sexual partners, history of sexually transmitted infections, feelings of shame and fear

Author	Country	Study Design	Sample	Findings
Chandrika et al., 2020	India	Cross-sectional	Women of reproductive age	Level of awareness, knowledge of family history
Gelassa et al., 2023	Ethiopia	Cross-sectional	Women of reproductive age	Knowledge about cervical cancer
Amin et al.,2020	Developing countries worldwide	Cross-sectional	Women > 18 years	Country status (developing/country), marital status, age, level of sexual activity, economy, education, employment status, type of insurance, type of health facility (government/private)
Donatus et al., 2019	Afrika Tengah	Cross-sectional	Women 25-65 years	Location of residence (rural/urban), level of awareness, distance to health facilities, screening costs, and screening service information.
Fentie et al., 2020	Ethiopia	Cross-sectional	Women of reproductive age	Anxiety levels, accessibility, religious and cultural group beliefs, fear levels towards cervical cancer screening procedures
Alam et al., 2022	Australia	Cross-sectional	Women of reproductive age	Length of stay, access to general practitioner, employment status, knowledge of cervical cancer and screening procedures
Phaiphichit et al., 2022	Laos	Case-control	Women 25-60 years old	Level of knowledge and behavior, recommendations from health workers, and access to transportation to health facilities
Al-amro et al., 2020	Yordania	Cross-sectional	Women 21-65 years old	Knowledge, patient awareness regarding health services, insurance coverage, education, income, women with/without jobs
Amado et al., 2022	Ethiopia	Case-control	Women 15-49 years old	Sociodemographic characteristics (age, ethnicity, education level, marital status, monthly income), knowledge related to cervical cancer and its screening, information and invitation to undergo cervical cancer screening by health service facilities, health status, duration of sexual intercourse, history of contraceptive use, history of childbirth, history of multiple sexual partners, history of sexually transmitted infections, and family history of cervical cancer.
Diendéré et al., 2023	Burkina Faso	Cross-sectional	Adult Women	Education level, location of residence (rural/urban), and employment status
Gemeda et al., 2020	Ethiopia	Cross-sectional	Women > 25 years	Age, educational status, having had an HIV test, and level of awareness of cervical cancer

Author	Country	Study Design	Sample	Findings
Maria et al., 2022	Uganda	Cross-sectional	Women with HIV	Information and encouragement from healthcare professionals
Ba et al., 2021	Afrika Tengah	Cross-sectional	Wanita 21-49 tahun	Demographic characteristics, personal characteristics, sexual activity, education level, and contraceptive use
Akokuweb et al., 2021	Afrika Selatan	Cross-sectional	Women 15-49 years old	Demographic factors (age, occupation, education, health insurance, geographic type, and health status)
Bante et al., 2019	Ethiopia	Cross-sectional	Women of reproductive age	Age, information from health workers, history of visits to health facilities, history of sexually transmitted infections, and family history of cervical cancer.
Isabirye, 2022	Uganda	Cross-sectional	Women > 25-49 years old	Marital status, sexual partner factors, education level, financial support factors
Ago et al., 2022	Nigeria	Cross-sectional	Women of reproductive age	Knowledge and understanding of cervical cancer risk factors
Natae et al., 2021	Ethiopia	Cross-sectional	Women 20-65 years	Level of knowledge, history of having discussions with health workers

DISCUSSION

Table 1 data shows that the articles reviewed in this study were mostly published in 2020, namely 7 articles (33%) with cross-sectional study being the most widely used design, 19 articles (90.5%). Ethiopia is the country with the most articles found, as many as 7 articles (33%). Based on the ecological model theory, the most influential factor in participation in cervical cancer screening is the intrapersonal factor, as many as 21 articles.

Intrapersonal factors are defined as individual characteristics such as knowledge and attitudes that influence behavior. This factor plays a dominant role in women in low or lower middle economic countries (Weng et al., 2020). These factors include age, knowledge about the disease and its prevention, knowing or being aware of other people affected by cervical cancer, knowing people who have been screened for cervical cancer, attitudes and perceptions (Gelassa et al., 2023), education level, literacy exposure (Diendéré et al., 2023) and media, fear of screening results (Ba et al., 2021), awareness, self-confidence (Akokuwebe et al., 2021), history of previous gynecological examinations, history of sexual partners, history of previous illnesses, and employment status (Ago, Efiok nd Abeng, 2022).

Based on age level, the most people who undergo cervical cancer screening are older people (40-49 years old) (Chandrika, Naik and Kanungo, 2020). This is because in young women the risk of getting cervical cancer is lower than in older women, so they are less interested in undergoing cervical cancer screening (Wakwoya, Sadi and Sendo, 2023).

Knowledge about cervical cancer and its prevention is the most important factor in the intrapersonal stage. If someone has information related to the severity of cervical cancer, participation in cervical cancer screening can increase. The level of education has a positive relationship with

the level of knowledge, meaning that the lower the level of education, the lower the level of knowledge, which can reduce the level of awareness of a person towards the initiative to carry out cervical cancer screening (Weng et al., 2020). In previous research, it was stated that the minimum level of education recommended to have a good understanding of cervical cancer is a minimum of 12 years of schooling (Amin et al., 2020).

Some evidence suggests that knowing someone has been screened for cervical cancer is associated with participation in screening. This is because women who have been screened will discuss the screening service procedure and the timing of the procedure with women who have not been screened. This may reduce a person's fear of being screened (Ampofo et al., 2020). Trust and self-confidence can also influence women who will undergo cervical cancer screening (Gemeda et al., 2020). Perceptions of health play an important role in reducing the risk of cervical cancer and increasing health-focused behavior (Ampofo et al., 2020). Feelings of anxiety, shame and fear about the procedure to be carried out are one of the reasons why people are seven times less likely to undergo cervical cancer screening (Fentie, Tadesse and Gebretekle, 2020). Based on research in Ghana, Uganda and England, women who felt less embarrassed were four times more likely to be screened than those who felt embarrassed (Wakwoya, Sadi and Sendo, 2023). The thought of not having signs and symptoms is a person's awareness which can also be a determinant of participation in cervical cancer screening (Chandrika, Naik and Kanungo, 2020).

Previous sexual partner history is also a factor that can influence cervical cancer screening participation behavior (Isabirye, 2022). A person with a history of more than one sexual partner is more likely to be screened than someone without a history of sexual contact with more than one person (Wakwoya, Sadi and Sendo, 2023). Likewise, someone who has a history of sexually transmitted infections and HIV will be four times more willing to undergo cervical cancer screening (Bante et al., 2019).

The status of a person working or not also affects participation in cervical cancer screening. Women who work get income compared to women who do not work. So women who have income tend to be willing to do cervical cancer screening (Ampofo et al., 2020).

Interpersonal factors influence interactions with primary groups such as family and friends. These groups can provide social support to improve health quality. Husband's approval is one of the interpersonal factors that influence women's participation in cervical cancer screening. A wife's closest family member is the husband, so the husband's approval is very strongly related to the wife's participation in screening. In another study, negative attitudes from men towards cervical cancer therapy or screening can influence women's participation in screening. Married women showed twice as high willingness to participate in cervical cancer screening compared to divorced or unmarried women. Other factors such as family income are also included in support for being able to participate in cervical cancer screening. Some of the reasons women refuse to do paid cervical cancer screening are due to socioeconomic reasons in the family (Weng et al., 2020).

At the community level, based on the World Health Organization (WHO) recommendations in cervical cancer management, health promotion can be provided at public events, media, religious communities, and other social events (Amin et al., 2020).

Prevention that can be done includes mass screening, especially for cervical cancer using Visual Inspection of Acetic Acid (IVA) which is done in public activities. Community service can help increase screening in places with low resources. The culture of rural and urban communities is quite different, rural communities in Thailand participate more in cervical cancer screening. In urban communities in Spain and Jordan, cervical cancer screening is more widely done. This shows that it does not only depend on the culture of the local community, but also other factors such as primary health facilities in carrying out health promotion play a role (Amin et al., 2020). Cervical cancer participation rates are also influenced by cultural and religious norms and groups. Some women think it is better to go to a place of worship and pray, reluctance to disrobe during a pelvic exam and reluctance to be examined by male health workers also influence cervical cancer participation (Fentie et al., 2020).

Based on organizational factors such as rules or regulations, and health workers who can encourage, promote, or provide health behavior consultations also play a role (Ampofo et al., 2020). Women who receive advice from health workers will be more willing to undergo cervical cancer screening than women who do not receive advice or consultation beforehand (Sarah Maria et al., 2022). This shows that information provided by health workers can increase awareness about the disease and participation in cervical cancer screening (Phaiphichit et al., 2022). Some women who do not get a pap smear recommendation from a healthcare provider are the main reason someone does not get tested (Natae et al., 2021). Several studies have shown that recommendations from health workers are the main determinant and predictor of whether someone will undergo cervical cancer screening (Ampofo et al., 2020).

Ease of accessibility is also a factor that can affect cervical cancer screening. Long distances to health care facilities can reduce an individual's willingness to undergo cervical cancer screening. (Donatus et al., 2019). Women who know the location of health service facilities and their proximity have been shown to have a higher willingness to undergo cervical cancer screening because it saves time and energy. (Alam, Ann Dean and Janda, 2022).

Public policy factors such as health insurance play a role in screening participation (Amin et al., 2020). In Iran the most basic health insurance can cover the cost of cervical cytology screening examination (Al-Amro et al., 2020). In other research, it was also stated that people with a high level of education do not want to pay for cervical cancer screening but prefer to participate in free cervical cancer programs held by the government and health insurance (Weng et al., 2020).

Participation in cervical cancer screening is still relatively low in the world. Evidence suggests that intrapersonal factors such as knowledge are the most important factors in someone participating in cervical cancer screening. This must be reinforced by women's knowledge and awareness of cervical cancer screening.

AUTHOR CONTRIBUTION

Routine health education for women and recommendations to undergo pap smear screening from health workers are one way to increase the willingness to undergo cervical cancer screening and reduce the incidence of cervical cancer. Male operators as screening service providers are also one of the reasons women refuse to undergo cervical cancer screening.

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CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest

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